

In response to the Office Action of October 6, 2003, please amend the application as

| Columbia |

follows:

## **IN THE CLAIMS**

Please amend the claims as follows:

- 1. (Original) A catalyst for removing dioxin, comprising 1-10 wt% of vanadium. 0.1-5 wt% of nickel, 0.1-5 wt% of molybdenum and 1-15 wt% of tungsten, on a mixture support consisting essentially of 10-50 wt% of alumina and 50-90 wt% of titania.
- 2. (Currently Amended) A method for preparing a the dioxin removal catalyst according to <u>claim 1, which comprises comprising the following steps of:</u>
  - a) pretreating a spent catalyst discharged from a hydro-desulfurization process of an oil refinery, which comprises 5-30 wt% of vanadium, 1-10 wt% of nickel, 1-10 wt% of molybdenum, 0.1-5 wt% of iron, 1-10 wt% of sulfur, 0.1-5 wt% of silicon and 0.1-5 wt% of a phosphor phosphorus component on an alumina support, by thermally treating said spent catalyst, followed by washing with water;
  - b) providing a titania support impregnated with 1 to 20 wt% of tungsten;
  - homogeneously mixing the pretreated spent catalyst with the tungstenc) impregnated titania under the addition of water and acid;
  - d) dehydrating the mixture to remove excess moisture and active metal components therein present in excess of the compositional range required for said dioxin removal catalyst as well as excess moisture;
  - e) drying the dehydrated mixture, followed by grinding the dried mixture; and

- f) forming a catalyst body by extruding the grinded ground mixture or coating the grinded ground mixture to a structure, followed by drying and then calcining the dried structure to form a catalyst body.
- 3. (Currently Amended) The method as defined in claim 2, wherein the thermally treating thermal treatment of the step a) step is carried out at 300-400°C for 3-5 hours.
- 4. (Currently Amended) The method as defined in claim 2, wherein the tungsten impregnated titania has a specific surface area of 60-100 m<sup>2</sup>/g and pore sizes of 150-200 A, and has an anatase crystalline structure.
- 5. (Original) The method as defined in claim 2, wherein the alumina support in the spent catalyst is a gamma alumina support, and has a specific surface area of 40-100 m<sup>2</sup>/g and pore sizes of 150-300 A.
- 6. (Currently Amended) The method as defined in claim 2, wherein the acid is oxalic acid or citric acid and is added [at] in an amount of 3 to 7 wt% based on the spent catalyst and the tungsten impregnated titania in the c) step.
- 7. (Currently Amended) The method as defined in claim 2, the c) step is carried out in a ball mill until particles having a size of 2-3  $\mu$  m amount to 4-60 volume % based on the total volume of particles in the mixture.
- 8. (Original) The method as defined in claim 2, wherein the spent catalyst and the tungsten-impregnated titania are mixed at weight ratio of 10:90-50:50 in the c) step.
- 9. (Currently Amended) The method as defined in claim 2, wherein the d) step is carried out [by use of] using a filter press under a pressure of 10-15 kg/cm<sup>2</sup>.
- 10. (Currently Amended) The method as defined in claim 2, wherein the e) step is conducted [by use of] using a continuous dryer-miller.

- 11. (Currently Amended) The method as defined in claim 2, wherein the drying of the step e) step is carried out at 80-120°C for 0.5-2 hours.
- 12. (Currently Amended) The method as defined in claim 2, wherein the drying of the f) step is carried out [by use of] using a hot blast dryer, a microwave dryer or a thermohydrostat at 60-120°C for 3-48 hours.
- 13. (Currently Amended) The method as defined in claim 2, wherein the calcining of the step f) step is carried out at 450-550°C for 3-5 hours.
- 14. (Currently Amended) The method as defined in claim 2, wherein the extruding comprises dry-mixing the grinded ground mixture with organic binders, inorganic binders and glass fiber; aging the dry mixture, together with water, plasticizers, lubricants and dispersants, at 5°C or lower for 1-2 days; kneading the aged mixture in a kneader 2-5 times; storing said kneaded mixture at 5°C or lower for 1-5 days; and molding the stored mixture into a honeycomb form through a vacuum extruder.
- 15. (Currently Amended) The method as defined in claim 2, wherein the coating comprises applying, pouring or pressure-adhering a coating material including the grinded ground mixture, inorganic binders and water to a metal plate of honeycomb form or a cordierite-typed ceramic honeycomb.